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Lead Scientist's Report

Summary: This report highlights four items: 1) the Lead Scientist's participation in two meetings in Spain, the 7th Symposium for European Freshwater Sciences (SEFS) and a river conservation workshop sponsored by Fundación BBVA, a Spanish foundation, 2) the recently-released review panel report on the Draft Plan for Adaptive Management of Fall Outflow for Delta Smelt Projection and Water Supply Reliability, and 3) the latest issues of two Delta Science Program Council-sponsored publications — the online journal, *San Francisco Estuary and Watershed Science* and bimonthly electronic newsletter, *Science News*, and 4) the IEP spring and summer delta smelt abundance indices

SEFS Meeting and River Conservation Workshop

Lead Scientist, Dr. Cliff Dahm, recently returned from his participation in the 7th SEFS meeting in Girona, Spain and a river conservation workshop in Madrid, Spain. Leading freshwater scientists from throughout Europe met at the SEFS to discuss current research and its application to water management. Excellent plenary talks addressed the current status of river restoration, the effect of excessive groundwater extraction of river flows, and links between the economics of water resource management and river conservation. For more information on the SEFS meeting please visit: http://sefs2011.com/.

Dr. Dahm was one of 12 invited international experts to present at a river conservation workshop sponsored by the Fundación BBVA in Madrid, Spain. Dr. Dahm presented on the interface of science, policy, and planning in the California Delta and its relevance to river conservation efforts worldwide. A publically available publication on global challenges and opportunities for future river conservation will result from this workshop.

Independent Review Panel Report on the Draft Plan for Adaptive Management of Fall Outflow for Delta Smelt Protection and Water Supply Reliability

On July 6, 2011 an independent review panel formed by the Delta Science Program released its review of the Draft Plan for Adaptive Management of Fall Outflow for Delta Smelt Protection and Water Supply Reliability. The review informs the U.S. Bureau of Reclamation of the scientific strengths and weaknesses of a draft plan for implementation of the Fall outflow action called for in the Reasonable and Prudent Alternatives (RPAs) in the U.S. Fish and Wildlife Service's Biological Opinion for delta smelt. The RPA calls for higher Fall Delta outflows in above-normal and wet years. The action is intended to improve habitat suitability and contribute to higher average delta smelt abundances. For more information or to read the report please visit: http://www.deltacouncil.ca.gov/independent-review-draft-plan-adaptive-management-fall-outflow-delta-smelt-protection-and-water-supp.

Latest Issues of *San Francisco Estuary and Watershed Science* and *Science News*

The latest issue of the Council-sponsored online journal, *San Francisco Estuary and Watershed Science* was recently released. An article in this issue, by Sommer et al., includes recent scientific understanding regarding the spawning migration of delta smelt in the upper San Francisco Estuary. New information suggests that there is greater variability in the migration behavior of delta smelt than previously known. All delta smelt do not migrate in winter as previously thought. This article is a product of a past CALFED Science Program sponsored Delta Smelt Workshop. To access the journal please visit: http://escholarship.org/uc/jmie_sfews.

The latest issue of *Science News*, a Delta Science Program publication, was released in early July. “Learning from the Past to Inform the Future” highlights the use of historical analysis of Delta landscapes to inform restoration strategies. This article features the work of Alison Whipple and Robin Grossinger of The San Francisco Estuary Institute-Aquatic Science Center. The historical Delta was much more than just a simple marsh. Lakes, grasslands, riparian zones, natural levees, and logjams were prevalent components in various parts of the Delta. The spatial heterogeneity of the Delta can be used to inform ecosystem restoration components of the Delta Plan. To read the latest issue of *Science News* please visit: http://archive.deltacouncil.ca.gov/delta_science_program/publications/sci_news_0711.html.

IEP spring and summer delta smelt abundance indices

The Interagency Ecological Program (IEP) conducts year-round fish monitoring surveys in the Delta. Many of these surveys go back several decades and deliver annual fish indices that are used to track relative fish abundance over time. The spring “20-mm survey” index for postlarval delta smelt and the summer “townet survey” index for juvenile delta smelt were just released by the Department of Fish and Game. As the attached charts show, both indices are higher than in the four preceding years, but they remain low compared to historical levels.

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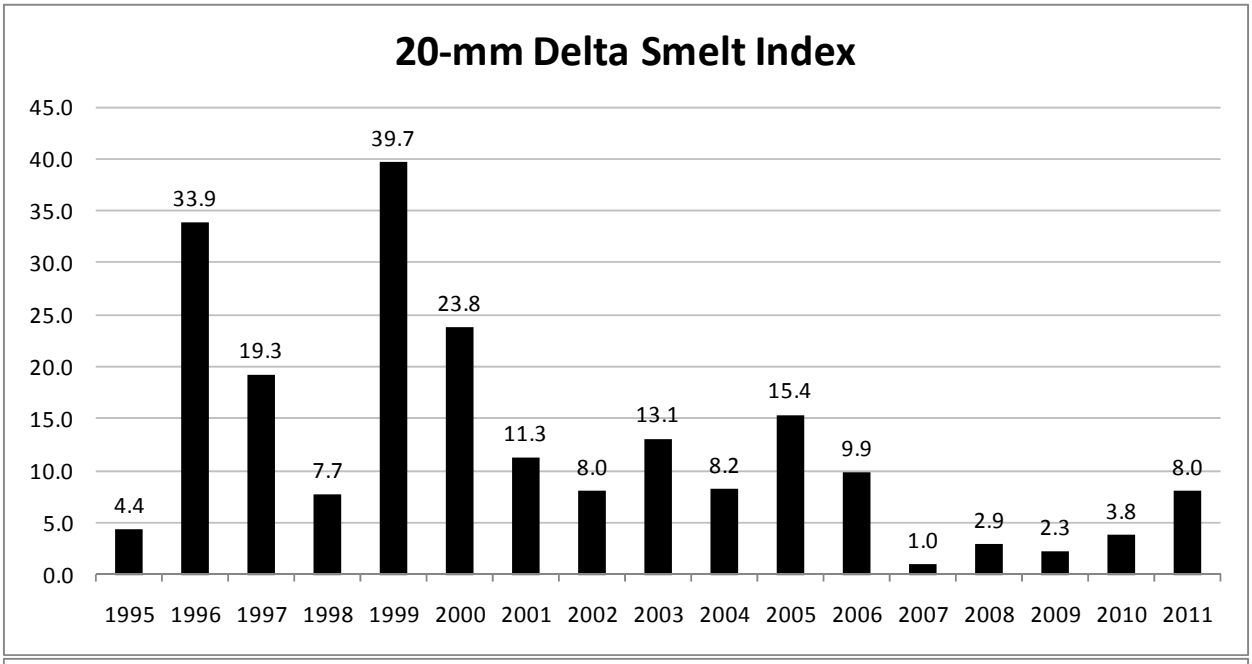
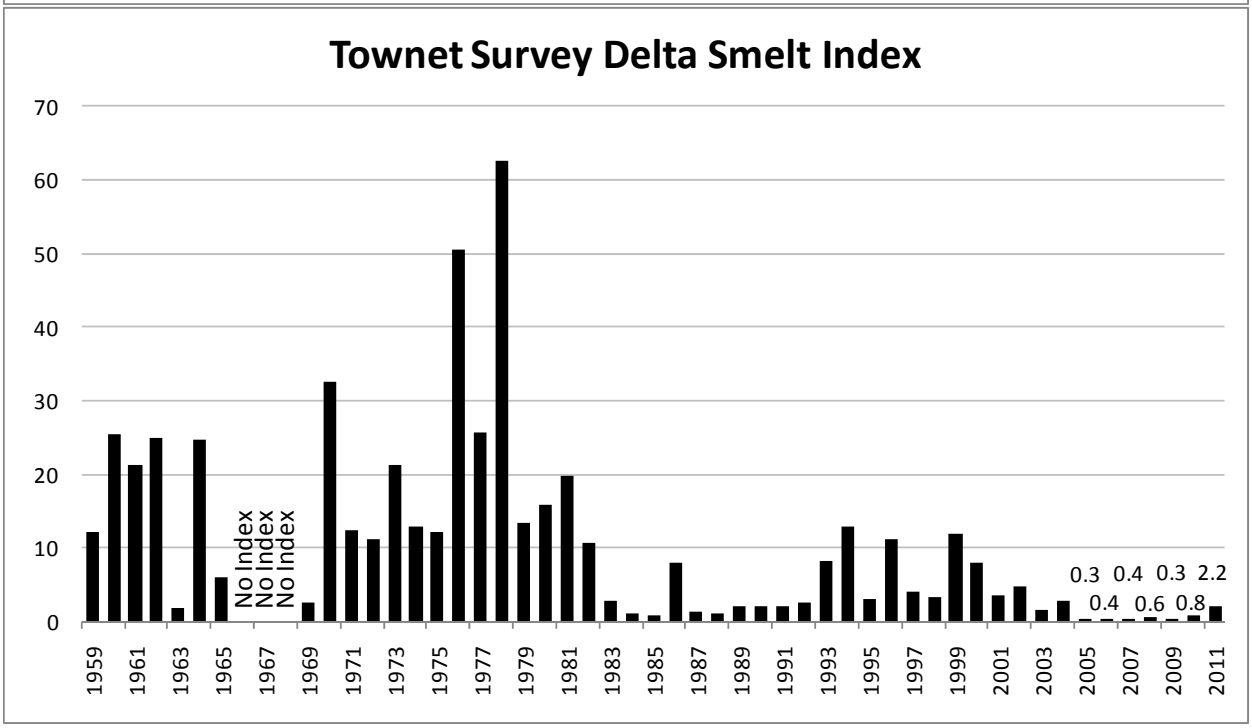
Attachment to Lead Scientist's Report:

Charts showing the spring "20-mm" and summer "townet" IEP abundance index time series for delta smelt. Data Source: CA Department of Fish and Game, see http://www.dfg.ca.gov/delta/data/ for more information.





State of California
Department of Fish and Game

M e m o r a n d u m

Date: July 14, 2011

To: Bob Fujimura
Senior Biologist
Region 3, Bay-Delta

From: Julio Adib-Samii
Associate Biologist
Region 3 Bay-Delta

Subject: 2011 Index of Delta Smelt Relative Abundance from the 20-mm Survey

The 20-mm index (Figure 1) is calculated each year once the accuracy of the data has been verified. It is calculated by summing the geometric means of delta smelt catches over a specific period of time for each year.

Year	Index
1995	4.4
1996	33.9
1997	19.3
1998	7.7
1999	39.7
2000	23.8
2001	11.3
2002	8.0
2003	13.1
2004	8.2
2005	15.4
2006	9.9
2007	1.0
2008	2.9
2009	2.3
2010	3.8
2011	8.0

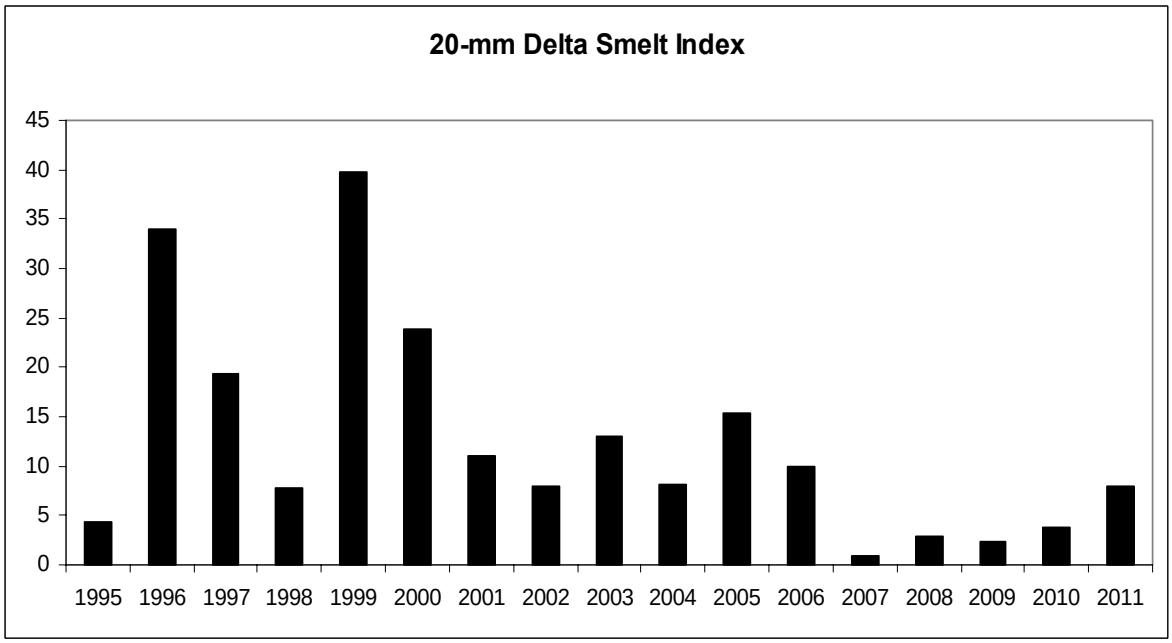


Figure 1. The 20-mm survey delta smelt index over the period of record, 1995-2011.

The following is a summary of the methods used to calculate the index.

The index is calculated using the data from only 4 out of the 9 surveys conducted: the 2 surveys before and the 2 after the point where the average length of delta smelt (less than 60 mm in length) equals 20 mm. From this subset of surveys, the delta smelt catch-per-unit-effort (CPUE) is calculated for each of the 41 “core” stations. One (1) is added to each CPUE value and then a log10 transformation is performed. For example:

CPUE	3.45
CPUE+1	4.45
Log10Trans = log(4.45)/(log10)	0.65

These calculations are made for each station within a given survey. The average is taken of all the resulting “Log10Trans” values within a survey in order to obtain one value. The geometric mean is calculated on this average value, like so:

10^(Avg([Log10 Trans]))-1

The 20-mm delta smelt index is the summation of the 4 geometric means.